FACT SHEET FOR NPDES PERMIT WA0020923
WESTPORT WASTEWATER TREATMENT PLANT

4/10/2006

TABLE OF CONTENTS

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 Revised Code of Washington (RCW) defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least 30 days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	City of Westport
Facility Name and Address	Westport Wastewater Treatment Plant 100 West Bay Street Westport, WA
Type of Treatment	Activated sludge in oxidation ditches, secondary treatment and UV disinfection
Discharge Location	Half Moon Bay at the Mouth of Grays Harbor Latitude: 46°54' 31" N Longitude: 124° 7' 19" W.
Water Body ID Number	Old ID No. WA-22-0020, New ID No. 1224026474620

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The City of Westport (City) is located at the mouth of Grays Harbor on the southern peninsula known as Point Chehalis. The City is approximately 20 miles southwest of Aberdeen, Washington, on State Route 105. The City was incorporated in 1914 and was already a busy, but small, center for fishing, shellfish, and seafood processing. The City still caters to tourism, commercial, and sport fishing.

The City has two distinct geographic areas. Westhaven is located on the northern tip of Point Chehalis and includes the marina and commercial area. The main residential area of Westport is located approximately one mile further to the south on the east side of the peninsula. Today there is a small but fairly consistent, year-round population base. The existing permanent population from the 2000 census was 2,137 residents and the City was estimated to grow to 2190 by 2004 (G&O,2004), however the January 2005 Discharge Monitoring Report (DMR) stated that the population served was 2130. There are seasonal residents who spend two or more weeks, which was estimated to be at 5,000 in the 2000 fact sheet. The transients who stay for less than two weeks during the sport fishing and clamming seasons may swell the population to 27,000 during the summer and fall.

The wastewater treatment plant and collection system were originally constructed in 1964 to serve the Westhaven area. Part of the system was upgraded in 1974 to serve most of the City. The collection system was again expanded between 1979 and 1991 to include the Twin Harbor State Park, The Ocosta School District, and the Hammond Trailer Park. The facility was again modified and expanded in 1996 through 1997. The improvements that were new in 1996 included:

- Headworks with fine screen and grit removal,
- Replaced aerators for the existing oxidation ditches,
- Replaced the clarifiers,
- Replaced the activated sludge handling,
- Switching from chlorine to UV disinfection,
- Replaced the electric service and controls,
- Added a standby generator,
- Replaced the laboratory and offices, and
- Replaced the biosolids handling.

In the last couple of years, the Department has learned that there were significant problems with operating the plant. Several violations and unreported washout of solids from the clarifiers and into the receiving water had been occurring.

On April 12, 2004, an administrative order (Order No. 1035) was issued to the City of Westport requiring the City to take certain actions to evaluate the facilities problems, identify solutions, and prevent the discharge of solids from occurring. The City has complied with the Order and is proceeding with a number of plant improvements.

The facility receives waste water from Westport Seafood, Inc which is listed as an industrial discharger and is covered under a state waste discharge permit. The discharger has low volume (0.03 mgd max) high strength BOD waste and is limited to discharge limits of 300 mg/L BOD and 300 mg/L TSS in their permit and under a City of Westport ordinance. Westport Seafood, however, has had several violations of their discharge limits. Westport Seafood is under a schedule of compliance in their new permit to add a pretreatment system in order to reduce the loading to the City of Westport treatment plant. Another seafood processor (Ocean Gold) has proposed to connect to the City treatment works which could result in another state waste discharge permit.

COLLECTION SYSTEM STATUS

The collection system was originally constructed in 1964 to serve the Westhaven area. In 1974, the collection system was upgraded to serve most of the city. In 1974, Washington State Parks installed a force main from Twin Harbor State Park to the southern city limit and in 1986, the Ocosta School District connected to the force main when the new school was constructed. In 1991, the Hammond Trailer Park was connected to the city system. Since the last Comprehensive Sewer Plan was written in1996, there has been very little growth. The system was assessed in 1996 and found to have adequate capacity. The assessment found that no replacement of new sewers was required. Any new connections or extension of any collectors will be done on an as needed basis by developers or homeowners.

The existing sewer system consists of approximately 17.5 miles of 8-inch and larger pipe and 12 pump stations. Pump stations No. 2 and No. 3 discharge directly to the wastewater treatment plant. Pump station No. 2 will receive variable speed drive pumps which will help with reducing overflows at the plant during peak flow periods. Pump station No. 3 already has variable speed drive pumps.

TREATMENT PROCESSES

Pursuant to Order No. 1035 from the Department, the facility plan was amended in October 2004 (G&O, 2004). There were several problems identified and recommendations to fix them. These recommendations are summarized briefly below:

- The flow splitting to the two influent Parshall flumes and oxidation ditches will be improved with the installation of overflow weir plates.

- Biological selectors will be added to the oxidation ditches to contact influent. This will create high food to mass zones and produce sludge with good settling characteristics.

- A new splitter flow box with overflow weirs will be constructed between the oxidation ditches and the secondary clarifiers to improve equal flow to each clarifier.

- The return activated sludge that is drained from the clarifiers including pumps, piping and balanced flows will be improved to minimize clogging.

- The effluent magnetic flow meter will be replaced with an 8-inch meter to eliminate an hydraulic back-up.

- A second bank of UV lamps will be installed to reduce the peak flow overloads and to add redundancy to the system.

- Variable frequency drives will be installed at Pump Station No. 2 to reduce overloads at the WWTP headworks.

- Additional mixing and aeration equipment will be added to the oxidation ditches. This equipment includes submersible propeller mixers and fine bubble air diffuser equipment for both ditches. Because of cost, only one ditch will be upgraded at a time.

- The effluent pumps will be improved.

- The solids handling capacity will be improved with the addition of more composting vessels.

The Westport Treatment Plant has oxidation ditches that use the activated sludge process. The influent waste water enters the plant at the headworks where there is a mechanical fine screen followed by a grit chamber. The rags, grit and other screenings are disposed of as solid waste. The flow leaving the grit chamber is split and immediately passes through two Parshall flumes. This existing flow from the grit chamber to the flow splitter is turbulent and the split flow has not been even to each oxidation ditch.

There are two oxidation ditches; however, at present only one ditch is being used as intended: to mix wastewater with activated sludge, whereas the second oxidation ditch is being used as a sludge aerobic digester. The proposed improvements to the oxidation ditches will add biological selectors to the influent end. The new selectors will improve the food to mass ratio, allow for less filamentous organisms and improve settling. The ditches will also receive new additional submersible mixers and new fine bubble air diffusion equipment which will aid in better mixing and in creating aerobic zones where needed.

The flow from the oxidation ditches to the secondary clarifiers at the present time has flow splitting problems akin to the problems with flow splitting into the ditches. A new clarifier flow splitting box is proposed. There are two clarifiers (only one was being used in May 2005). The clarifiers are the standard circular center-feed type.

The flow from the clarifiers goes through a magnetic flow-meter which currently necks down to a 6-inch pipe which is too small for high flows. The proposal is to change the meter to an 8-inch pipe. The flow then goes through the Ultra-Violet (UV) disinfection system which at the present time has no back-up or redundant banks of bulbs. The proposed fix is to add a new equally sized UV system and use the old UV system as back-up. This increase will allow one unit to be shut down for cleaning and to increase the units needed during high flows.

The new effluent pumps are needed to ensure the facility can discharge at all tide cycles and at peak flows. The current effluent pumps and piping do not meet the Department's requirements and will be upgraded.

Because the facility discharges to water classified as requiring protection for primary contact recreation and is close to shellfish harvesting areas, the facility is required to have reliability and redundancy of electric power and other equipment. The Permittee must evaluate the facility in order to meet Class 1 Reliability according to the Department's "Criteria for Sewage Works Design" (Ecology Publication # 98-37). An evaluation will need to be prepared by a licensed engineer and any recommendations submitted as a report.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility from an outfall diffuser into Half Moon Bay and is approximately 790 feet from shore. The first section of the outfall pipe after leaving the plant consists of 788 feet of 18-inch diameter PVC pipe. The second section consists of 807 feet of 14-inch diameter ductile iron pipe with flexible joints. Most of this second section is buried under the bottom of Half Moon Bay. The diffuser is comprised of 12-inch diameter cast iron pipe. The diffuser is in the shape of a closed loop 14-feet across, it surrounds and is anchored to the Point Chehalis Range Light Tower. There are a total of 15 3-inch ports. Six of the ports face towards the inside of the ring and nine ports face out. Most of the ports are staggered every other one from one direction to other, i.e., from the inside the ring to the outside of the ring. The ports are approximately three feet above the bottom and ten feet below the water surface at MLLW.

It should be noted that the outfall is shared by a seafood processor (Washington Crab) which is covered under NPDES Permit No. WA0003352.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the secondary clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local solid waste transfer station.

The sludge collected in the clarifiers is sent to an aerobic digester for further treatment. The digested sludge is mixed with a polymer and sent to a belt filter press for dewatering. The cake from the belt filter press is mixed with wood chips and composted in container vessel reactors where air is constantly blown through the mixture. At the present time the biosolids composting portion of the facility is undersized and three new composting vessels are proposed to be added. The facility will still not be able to keep up in the winter even with the added composting vessels. Therefore, they will need to have sludge or biosolids hauled away to a licensed biosolids facility in the winter when there is too much solids for the facility to handle. An extraordinary quality (EQ) Class A biosolids product is produced by the on-site composting. The product may be used for landscaping and on lawns. All of the compost is hauled off by individuals or landscapers.

PERMIT STATUS

The previous permit for this facility was issued on February 13, 2001. The previous permit placed effluent limitations on five-day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), pH, and Fecal Coliform bacteria.

An application for permit renewal was submitted to the Department on January 26, 2005, and accepted by the Department on April 24, 2005.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last compliance inspection on May 2, 2005.

During the history of the previous permit, the Permittee has not remained in compliance, based on DMRs submitted to the Department and inspections conducted by the Department. As noted earlier, there were several violations that resulted in an Administrative Order and a Facility Plan amendment. A new lead operator was hired and joined the staff at the beginning of May.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows:

Table 1: Wastewater Characterization data from February 2001 through January 2005

Parameter	Concentration and Load Discharged	Limit
Flow	0.62 MGD max day 0.35 MGD avg max month	0.80 mgd design avg flow for the max month
BOD	8.1 mg/L 95th percentile 143 mg/L max	30 mg/L monthly 45 mg/L weekly
	17.7lbs/d 95th percentile 357 lbs/d max	240 lbs/d monthly
	97% removal 5th percentile	85% removal minimum
TSS	21.3 mg/l 95th percentile 2047 mg/L max	30 mg/L monthly 45 mg/L weekly
	41.3 lbs/d 90th percentile 4,433 lbs/d max	240 lbs/d monthly
	90% removal 5th percentile	85% removal minimum
Fecal Coliform	2 col./100 ml geometric mean 872 col/100 ml 90th percentile	200 /100 ml monthly 400/100 ml weekly
pH	6.3 S.U. 5th percentile 7.2 S.U. 95th percentile	6 S.U. minimum 9 S.U. maximum

The design flow shown in the 2001 permit (1.0 mgd) for the City was not correct and should have been 0.8 mgd. The actual plant flows shown in Table 1 above were for the last three years rather than for the full four years for the rest of the table. The plant flows appear to be well within the original design with room for capacity and growth. That said, there are currently restrictions in portions of the plant, e.g., the effluent piping that need correcting if the plant is to meet the design flow.

The BOD was well under the 30 mg/L monthly limit in 90 percent of the samples. There were, however, BOD samples that were well above the limits. The TSS also appeared to be below the limit, but the plant has had problems with the solids washing out of the clarifiers during high flows. The fixes proposed to the plant in the 2004 Facility Plan Amendment should eliminate these problems.

The fecal coliform data shows a low geometric mean, however, there were more than 10 percent of the samples that were greater than the technology based limits of 200 monthly or 400 weekly. The discharge is located near a recreational surfing area and near shellfish growing areas. Therefore it is important that this limit be met. The improvements to the UV system, along with the retention of solids, should help the City in meeting the fecal coliform limits.

SEPA COMPLIANCE

The City of Westport issued a State Environmental Policy Act (SEPA) checklist for the 2004 wastewater facility plan improvements and met the requirements for a categorical exclusion. Therefore, neither an Environmental Assessment nor an Environmental Impact Statement was required.

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation**.** Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the Westport Wastewater Facility Plan (G&O, 2004) and are as follows:

Table 2: Design Standards for Westport WWTP.

Parameter	Design Quantity
Monthly average flow (max. month)	0.8 MGD
Peak Daily Flow	1.25 MGD
Instantaneous peak flow (hourly)	1.5 MGD
BOD_5 influent loading	1,600 lbs/day
TSS influent loading	1,600 lbs/day

The City of Westport population had 2,137 people in 2000 with 1,154 housing units and 1.85 people per housing unit. The facility plan (G&O, 2004) provided the following populations estimates:

Year	2005	2010	2020
Population	2,213	2,323	2,581

The City does not appear to be growing rapidly and appears to have capacity at the facility.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD_5, and TSS are taken from Chapter 173-221 WAC are:

Table 3: Technology-based Limits.

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 ml Weekly Geometric Mean = 400 organisms/100 ml
BOD_5 (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

The Westport Facility uses UV disinfection and, therefore does not need a chlorine limit.

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings (lbs/day) for BOD and TSS were calculated as the maximum monthly design flow (0.8 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 200 lbs/day.

The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 300 lbs/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses. The critical condition for the mouth of Grays Harbor is presumed to be the summer months which also occur when the population swells and there is more recreation in and on the water. Fecal coliform and ammonia are the two most likely parameters of concern.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the

numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

A dilution analysis was conducted for this discharge in a 1995 report. There are parts of this original study that are unclear and the information provided may need to be reexamined. Although the dilution factors from this analysis will be used for the new permit, there have been changes in the policy the Department uses to guide dilution studies. A new dilution analysis must be reconducted during the period of the new permit. More will be discussed about dilution below.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the mouth of Grays Harbor which is designated as a Class A receiving water in the vicinity of the outfall. The outfall is shared with Washington Crab Producers, a crab and shrimp seafood processor. There are no other outfalls in this bay. The nearest non-point source of pollutants is the Westport Marina which is in a different bay and more than a mile from the outfall.

Characteristic uses of Class A water include the following: water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	14 organisms/100 ml maximum geometric mean, and not have more than 10% exceeding 43/100 ml.
Dissolved Oxygen	6 mg/L minimum
Temperature	16 degrees Celsius maximum or incremental increases above background
pH	7.0 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of UDKHDEN. The dilution factors have been determined to be (Sanders & Assoc., 1995):

	Acute	Chronic
Aquatic Life	10.2:1	26.5:1

The dilution modeling in 1995 examined fewer conditions than are typically recommended by the Department's guidance on dilution modeling. The study at that time was concerned with modeling the diffuser in different configurations. Because the diffuser is now used in one configuration continuously, It would be best to redo the modeling using the existing diffuser configuration and vary the salinity, temperature, effluent flow, and ambient current. In addition, the modeling should add the combined flow of both the City's discharge and the Washington Crab Producer's discharge to the modeled parameters. This modeling shall be conducted over the coming permit cycle.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for ammonia for the mouth of Grays Harbor is likely to occur during the warmer summer months of June through September. However, the critical condition for fecal coliform is more likely during the months of September through January based on the fecal coliform TMDL (Ecology, 2000). The ambient background data used for this permit includes the following from the Department's Environmental Assessment Program web site for the Damon Point station (GYS016 for 1991-2002):

Parameter	Value used
Temperature	15^{o} C
pH (high)	7.9
Dissolved Oxygen	8.0 mg/L
Total Ammonia-N	0.07 mg/L
Fecal Coliform	2/100 ml
All Metals	0.0 (below detection limits)

BOD_5--This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water. BOD is a far field pollutant that takes several days to fully depress the oxygen. Because the small amount of BOD will be swept towards the ocean where there is a large amount of dilution when the dissolved oxygen reaches its lowest value, there should be little effect.

Temperature--The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at critical condition. The receiving water temperature at the critical condition is 15ºC and the effluent temperature is 16.8ºC. The predicted resultant temperature at the boundary of the chronic mixing zone is 15.07ºC and the incremental rise is 0.07ºC.

pH--Because of the high buffering capacity of marine water, compliance with the technology-based limits of 6 to 9 will assure compliance with the Water Quality Standards for Surface Waters.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 26.5.

Under critical conditions there was a prediction of a violation of the fecal coliform criterion for the receiving water with the technology-based limit. With a background fecal coliform of 2 org./100 ml, a dilution factor of 26.5, and a criterion of 14 org/100 ml, a weekly effluent limit of 320 organisms/100 ml was found to be protective of the fecal coliform criterion and therefore was imposed instead of the technology-based limitation.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxics were determined to be present in the discharge: ammonia, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc. A reasonable potential analysis (See Appendix C) was conducted on these parameters to determine whether or not effluent limitations would be required in this permit. The metals were only sampled one time. Ammonia was sampled 55 times over the life of the permit

The determination of the reasonable potential for the chemicals listed above to exceed the water quality criteria was evaluated with procedures given in EPA, 1991 (Appendix C) at the critical condition. The critical condition in this case occurs summer months. This seasonality really applies only to the ammonia. Because the metals were only sampled once, there was no critical season examined in the analysis. The parameters used in the critical condition modeling are as follows: acute dilution factor 10.2, chronic dilution factor 26.5, receiving water temperature 15ºC. The Grays Harbor had a small background of ammonia, but the metals have not been monitored and therefore a value of zero for background was used for all metals except for arsenic which had a background level of 2.8 µg/L. The effluent metals concentrations that were below detection were set at half the detection level for calculating the reasonable potential.

Copper was the only metal or substance that showed a reasonable potential. It is believed that the positive reasonable potential for copper was an artifact of small sample size. With only one sample, the reasonable potential calculation uses a multiplier that gives the impression that copper is a problem. With just three samples the multiplier is low enough to show no reasonable potential. Therefore, the permit will recommend sampling for copper twice yearly through the life of the new permit. It is recommended that the city use good sampling techniques for copper to minimize sample contamination.

Water quality criteria for metals in Chapter 173-201A WAC are based on the dissolved fraction of the metal. A sampling method discussion may be found in Appendix C on clean sampling for copper.

The Permittee may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific

basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

Metals criteria may also be adjusted using the water effects ratio approach established by USEPA, as generally guided by the procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or replaced.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Wet toxicity testing was conducted prior to the previous permit with the last test submitted in April 2001. The results of these tests did not show significant toxicity.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health and thus should be regulated for human health based criteria only after upgrades are completed, or does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED FEBRUARY 2001

Parameter	Existing Limits	Proposed Limits
BOD	30 mg/L, 240 lbs/day (Monthly)	30 mg/L, 200 lbs/day (Monthly)
	45 mg/L, 360 lbs/day (Weekly)	45 mg/L, 300 lbs/day (Weekly)
	85% removal	85% removal
TSS	30 mg/L, 240 lbs/day (Monthly)	30 mg/L, 200 lbs/day (Monthly)
	45 mg/L, 360 lbs. (Weekly)	45 mg/L, 300 lbs. (Weekly)
	85% removal	85% removal
Fecal coliform bacteria	200 org/100 ml (avg monthly) 400 org/100 ml (avg weekly	200 org/100 ml (avg monthly) 320 org/100 ml (avg weekly)
pH	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.

Items that have changed from those limits in the 2001 permit include: The reduction in BOD and TSS loading limits which are based on the facility design capacity. The design flow of 1.0 mgd in the 2001 permit was in error and should have been 0.8 mgd, therefore the pounds per day will be reduced for the new permit. The weekly fecal coliform limit was also reduced from 400 org/100 ml to 320 in order for the facility to be able to meet the criterion of 14 org/100 ml with the current dilution ratio.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for copper is being required to further characterize the effluent. This pollutant could have a significant impact on the quality of the surface water.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of the Department's *Permit Writer's Manual* (July 1994) for an oxidation ditch.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* The laboratory at this facility is accredited for: BOD/CBOD, pH, TSS and Fecal Coliform.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by the Department under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the local Health Department.

Requirements for monitoring sewage sludge and recordkeeping are included in this permit. This information will by used by the Department to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department has been delegated authority to administer the Pretreatment Program [i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)]**.** Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f)(1)(iii)], the

Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge [WAC 173-216-110(5)]. (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.) Industrial dischargers need to apply for a State Waste Discharge Permit 60 days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with State water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g. tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities (40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.).

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs to "take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system." Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a state waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a state waste discharge permit application.

Annual Submittal of List of Industrial Users

This provision requires the POTW to submit annually a list of existing and proposed SIUs and PSIUs. This requirement is intended to update the Department on an annual basis of the status of industrial users in the POTW's service area, without requiring the POTW to go through the process of performing a formal Industrial User Survey. This provision is normally applied to POTWs not serving industrial or commercial users. Although this permit does not require performance of an Industrial User Survey, the Permittee is nevertheless required under the previous section, to take adequate continuous routine measures to identify existing and new industrial discharges.

Duty to Enforce Discharge Prohibitions

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Support by the Department for Developing Partial Pretreatment Program by POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

EFFLUENT MIXING STUDY

The Department has estimated the amount of mixing of the discharge within the authorized mixing zone to determine the potential for violations of the Water Quality Standards for Surface Waters (Chapter 173-201A WAC). Condition S.7 of this permit requires the Permittee to more accurately determine the mixing characteristics of the discharge. Mixing will be measured or modeled under conditions specified in the permit to assess whether assumptions made about dilution will protect the receiving water quality outside the allotted dilution zone boundary. This mixing study should be conducted with the combined flows of the Westport discharge and the Washington Crab Producers discharge.

OUTFALL EVALUATION

Proposed permit condition S.9 requires the Permittee to conduct an outfall inspection at least once during the life of the permit and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information

obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

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1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Gray & Osborne, Inc.

2004, October. City of Westport Wastewater Facility Plan. Seattle Washington. No. 04334

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1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

Laws and Regulations(http://www.ecy.wa.gov/laws-rules/index.html)

Permit and Wastewater Related Information
(http://www.ecy.wa.gov/programs/wq/wastewater/index.html

Washington State Department of Ecology.

2000. Grays Harbor Fecal Coliform Total Maximum Daily Load Study. Olympia, Washington. Publication No. 00-03-020.

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Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on May 16, 2004, and May 24, 2004, in the *Aberdeen Daily World* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on January 13, 2006, in the *Aberdeen Daily World* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Carey Cholski
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone (360) 407-6554, or by writing to the address listed above.

This permit and fact sheet were written by Eric Schlorff**.**

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

CBOD5 – The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celsius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD5 is given in 40 CFR Part 136.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued there under (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at (http://www.ecy.wa.gov/programs/wq/wastewater/index.html

Calculation of seawater fraction of un-ionized ammonia from Hampson (1977). Un-ionized ammonia criteria for salt water are from EPA 440/5-88-004.

Based on Lotus File NH3SALT.WK1 Revised 19-Oct-93

INPUT	
1. Temperature (deg C):	17.8
2. pH:	8.1
3. Salinity (g/Kg):	19.1
OUTPUT	
1. Pressure (atm; EPA criteria assumes 1 atm):	1.0
2. Molal Ionic Strength (not valid if >0.85):	0.388
3. pKa8 at 25 deg C (Whitfield model "B"):	9.290
4. Percent of Total Ammonia Present as Unionized:	3.791%
5. Unionized ammonia criteria (mg un-ionized NH3 per liter) from EPA 440/5-88-004	
Acute:	0.233
Chronic:	0.035
6. Total Ammonia Criteria (mg/L as NH3)	
Acute:	6.15
Chronic:	0.92
7. Total Ammonia Criteria (mg/L as NH3-N)	
Acute:	5.05
Chronic:	0.76

INFLUENT AND EFFLUENT COPPER SAMPLING DISCUSSION

The Permittee shall collect receiving water information necessary to determine if the effluent has a reasonable potential to cause a violation of the water quality standards. If reasonable potential exists the Department will use this information to calculate effluent limits. All sampling and analysis shall be conducted in accordance with the guidelines given in *Guidelines and Specifications for Preparing Quality Assurance Project Plans*, Ecology Publication 91-16.

The Permittee shall sample and analyze the INFLUENT and effluent for both total recoverable and dissolved copper, The time of sampling as described in the permit shall be **two times each year** of the permit term. The Permittee shall follow the clean sampling techniques (*Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels*, EPA Publication No. 821-R-95-034, April 1995). The sampling station accuracy requirements are ± 20 meters. The receiving water sampling location should be outside the zone of influence of the effluent. The Department considers ten receiving water samples to be the optimal data set and four to be the minimum, for determining reasonable potential to cause a violation of the water quality standards. All chemical analysis shall be conducted according to methods given in 40 CFR 136 and shall have the following detection levels:

POLLUTANT PARAMETER	DETECTION LIMIT REQUIRED
Copper	1.0 µg/L

Any subsequent sampling and analysis shall also meet these requirements. The Permittee may conduct a cooperative receiving water study with other NPDES Permittees discharging in the same vicinity. The Permittee shall submit the results of the study to the Department within 90 days of completing the effluent and receiving water studies.

REASONABLE POTENTIAL CALCULATION

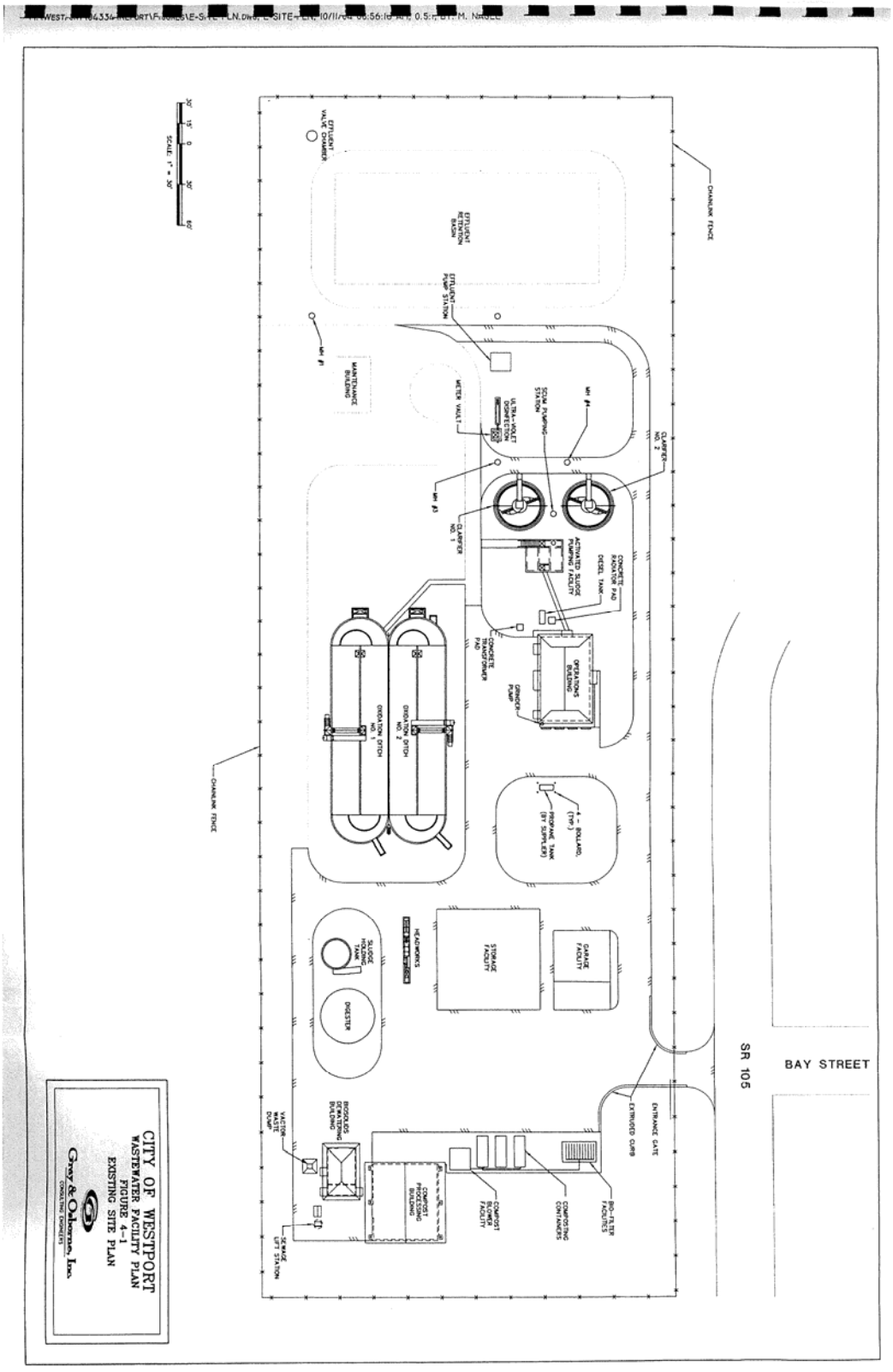
This spreadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 56. User input columns are shown with red headings. Corrected formulas in col G and H on 5/98 (GB)

				State Water Quality Standard		Max concentration at edge of		
	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Conc. (metals as dissolved)	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	LIMIT REQ'D
Parameter	Acute	Chronic	µg/L	µg/L	µg/L	µg/L	µg/L	
Ammonia			1.20	5050.0000	760.0000	49.49	19.79	NO
Arsenic	0.95	0.95	2.80	69.0000	36.0000	6.57	4.25	NO
Cadmium	0.99	0.99	0	42.0000	93.0000	0.30	0.12	NO
Chromium	0.99	0.99	0	1100.0000	50.0000	0.30	0.12	NO
Copper	0.83	0.83	0	4.8000	3.1000	9.58	3.69	YES
Lead	0.95	0.95	0	210.0000	8.1000	0.29	0.11	NO
Mercury	0.85		0	1.8000	0.0250	0.05	0.02	NO
Nickel	0.99	0.99	0	74.0000	8.2000	1.20	0.46	NO
Selenium	0.85		0	29.0000	71.0000	1.29	0.58	NO
Zinc	0.95	0.95	0	90.0000	81.0000	42.54	16.37	NO

REASONABLE POTENTIAL--ADDITIONAL INPUT VARIABLES

	Effluent percentile value		Max effluent conc. measured	Coeff of Variation		# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
Parameter		Pn	µg/L	CV	s	n			
Ammonia	0.95	0.947	486.0	0.60	0.55	55	1.02	10	27
Arsenic	0.95	0.050	7.00	0.60	0.55	1	6.20	10	27
Cadmium	0.95	0.050	0.50	0.60	0.55	1	6.20	10	27
Chromium	0.95	0.050	0.50	0.60	0.55	1	6.20	10	27
Copper	0.95	0.050	19.00	0.60	0.55	1	6.20	10	27
Lead	0.95	0.050	0.50	0.60	0.55	1	6.20	10	27
Mercury	0.95	0.050	0.10	0.60	0.55	1	6.20	10	27
Nickel	0.95	0.050	2.00	0.60	0.55	1	6.20	10	27
Selenium	0.95	0.050	2.50	0.60	0.55	1	6.20	10	27
Zinc	0.95	0.050	74.00	0.60	0.55	1	6.20	10	27

The reasonable potential for copper to violate the water quality standards is likely a result of there being only one sample event. With just three samples at 19 µg/L, the multiplying factor is such that the copper meets the water quality criterion.


CITY OF WESTPORT
WASTEWATER FACILITY PLAN
FIGURE 4-1
EXISTING SITE PLAN
Gray & Osborne, Inc.
CONSULTING ENGINEERS
SCALE: 1" = 30'
EFFLUENT VALVE CHAMBER
EFFLUENT RETENTION BASIN
EFFLUENT PUMP STATION
MH #1
MAINTENANCE BUILDING
METER VAULT
ULTRA-VIOLET DISINFECTION
SLUDGE PUMPING STATION
MH #2
CLARIFIER NO. 2
MH #3
CLARIFIER NO. 1
ACTIVATED SLUDGE PUMPING FACILITY
CONCRETE RADIATOR PAD
DIESEL TANK
CONCRETE TRANSFORMER PAD
OPERATIONS BUILDING
GRINDER PUMP
OXIDATION DITCH NO. 1
OXIDATION DITCH NO. 2
CHAINLINK FENCE
4" ± BOLLARD (TYP.)
PROPANE TANK (BY SUPPLIER)
SLUDGE HOLDING TANK
HEADWORKS
STORAGE FACILITY
GARAGE FACILITY
DIGESTER
BIOSOLIDS DEWATERING BUILDING
SEPTAGE WASTE DUMP
SEPTAGE LIFT STATION
ODOR CONTROL PROCESSING BUILDING
COMPOST BLENDING FACILITY
COMPOSTING CONTAINERS
BIO-FILTER FACILITIES
EXTRUDED CURB
ENTRANCE GATE
SR 105
BAY STREET

APPENDIX D--RESPONSE TO COMMENTS

The Department received comments on the public draft of the Westport permit and fact sheet from Jay Swift with Gray & Osborne, Inc. on behalf of the City of Westport and from the Craig Zora with the Department of Natural Resources.

The following comments (one through six) were from Jay Swift with Gray & Osborne, Inc. on behalf of the City of Westport.

Comment 1:

> **Summary of Permit Report Submittals, Page 4.** We request that the first submittal dates for the Effluent Mixing Plan of Study and Effluent Mixing Report be changed from April 15, 2006, and December 15, 2006, respectively, to April 15, 2009, and December 15, 2009, respectively. Development of the Effluent Mixing Plan of Study will require review of the seven documents cited as references in the permit, significant investigation into existing data sources, consultation with the Department of Ecology and the Department of Health Shellfish Protection Program, and coordination with Washington Crab Producers. The City has not budgeted for the significant cost associated with this study for 2006, and postponing the study would allow the City time to budget for this study and coordinate the work with the outfall evaluation also due in 2009. The City has faced considerable expenditures in 2004-2006 with the completion of a Facility Plan, a Sewer Comprehensive Plan, and completion of facility upgrades. The revised schedule we have proposed would still allow incorporation of the revised dilution factors in calculations for the new NPDES permit in 2011.

Response 1:

> We will move these dates ahead as requested.

Comment 2:

> **Summary of Permit Report Submittals, Page 4.** We request that the first submittal dates for the Electrical Power Failure/Facility Reliability Evaluation be changed from June 15, 2007, to September 15, 2008. The City has faced considerable expenditures in 2004-2006 with the completion of a Facility Plan, a Sewer Comprehensive Plan, and completion of facility upgrades. The revised schedule we have proposed would still allow coordination of this submittal with a SCADA evaluation planned to commence after the completion of facility upgrades at the WWTP and the completion of a General Sewer Plan.

Response 2:

> We are willing to change the dates, but not as far out as suggested. We will move the date for the study to September 15, 2007. This should still allow time for planning and conducting the evaluation.

Comment 3:

> **S2. Monitoring Requirements, Page 6.** Change Sample Type for monitoring the parameter Flow for Wastewater Effluent to “Recording on-line” from “Recoding on-line.”

Response 3:

We will make this change to the permit.

Comment 4:

S2 Monitoring Requirements, Page 6. Footnote b specifies "graphite furnace atomic absorption" and "Method 1669" for copper analysis and sampling, respectively. These references should be changed, respectively, to "graphite furnace atomic absorption or Inductively Coupled Plasma-Mass Spectrometry" (ICP-MS, since ICP-MS is considered to be the state of the art for copper analysis), and "methods adapted from Method 1669" since Method 1669 is specifically a method for sampling ambient water, not wastewater influent and effluent.

Response 4:

We will change part of the footnote so that ICP-MS will be used and not the graphite furnace for analysis and the "methods adapted from Method 1669" will be inserted as well. It is advised that the Permittee use clean sampling techniques described in method 1669 to reduce the likelihood of the sample being contaminated with copper that is not from either the influent or the effluent. It is also advised that the Permittee either get training in clean sampling techniques or have a qualified laboratory do the sampling. The changed footnote b will read:

> [b] The method detection level (MDL) for copper is 0.087 µg/L and the minimum level is 0.2 µg/L using Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) and sampling methods adapted from Method 1669. This method uses clean sampling techniques to reduce the likelihood of contamination.

Comment 5:

S8. Effluent Mixing Study, Page 17-18. See Comment #1 above.

Response 5:

We changed the dates in this portion of the text to coincide with the changes in the submittal table as requested.

Comment 6:

S5D. Electrical Power Failure/Facility Reliability Evaluation, Page 12. See Comment #2 above.

Response 6:

We changed the dates in this portion of the permit to correspond with the change we made in the submittal table. We moved the dates ahead to September, but not a whole year ahead as requested.

The following comments were received from Craig Zora, Aquatic Land Manager with the DNR Aquatics Region/Rivers Division.

Comment 7:

Outfall Evaluation: As required in the previous NPDES permit the City shall inspect, the submerged portion of the outfall line and diffuser to document its integrity and continued function. If conditions allow for a photographic verification, it shall be included in the report. By October 30, 2004, the inspection report shall be submitted to the Department of Ecology (NPDES permit Section S11). Please submit a copy to the DNR.

Is Sediment accumulating in the vicinity of the outfall? The outfall is shared by a seafood processor (Washington Crab) which is covered under NPDES permit WA0003352. Is any accumulation of sediment attributable to discharges from Washington Crab?

Response 7:

The requirement for a photographic verification is in the new permit as well. However, the requirement has a caveat, i.e., "if conditions allow." There is also a requirement for a mixing zone analysis in section S8 with a dye study which should better predict the conditions of the discharge at the outfall. The DNR can examine the records at the Department as needed. Because of the currents in the area from the ocean and the out going flow of Grays Harbor, it is unlikely that the sediments are accumulating in the vicinity of the outfall.

Comment 8:

Development of Disposal Alternatives: The City will provide updated reports to DNR at each renewal of its NPDES permit for the project addressing the progress made toward reducing the reliance on the receiving waters of Washington State for the disposal of waste effluent, and/or combined sewer overflows and to promote water re-use. Progress includes but is not limited to:

- Reduction of inflow and infiltration (I & I);
- Elimination/reduction of stormwater inputs;
- Groundwater recharge;
- The beneficial reuse of reclaimed water as authorized by RCW 90.46 (i.e. stream augmentation, industrial process supply, agricultural application);
- All other efforts related to water re-use and recycling.

Response 8:

The above statement does not appear to require any changes to the permit or fact sheet. It is not clear whether DNR is requesting this information be added or if it is simply a statement of DNRs responsibility. However, the permit already has many of the elements shown in this statement. The NPDES permits exist to implement water quality laws enforceable through the Department and there is no clear guidance connecting DNR and the Department under the NPDES permit. Some of these elements mentioned above are not implementable through the NPDES permit.

The Department appreciates DNR's role as Stewards of the states aquatic lands, however, the Department's authority to require that documents submitted pursuant to the permit be also submitted to DNR is unclear. If review of studies conducted pursuant to the permit is important

to DNR, the Department encourages DNR to address these items in the long-term aquatic land lease agreements.

Comment 9:

Sampling: Also required within the DNR outfall agreement 51-073973 is a "sampling and analysis plan" for monitoring of potential impacts to state owned aquatic lands potential impacted by Grantee's operation. As satisfaction of this requirement, State will accept annual synopsis report which identifies City's compliance record for that year with the effluent limitations identified within the City's Department NPDES permit status, any incidents of exceedance of any of the effluent limitations set by that NPDES permit, and describe any and all actions taken in response to any such identified exceedances.

Please send all reports to: Craig Zora, Department of Natural Resources, P.O. Box 280, Castle Rock, Washington 98611. The Department of Ecology may contact me at (360) 532-8478 with any questions relating to our comments.

Response 9:

This above statement does not appear to request any changes to the NPDES permit or fact sheet. See response to number 8 above.